

Amendment
Serial No. 10/562, 542

NL 030783
RECEIVED
CENTRAL FAX CENTER
MAR 17 2009

IN THE SPECIFICATION

Kindly replace the paragraph beginning on page 2, line 29 and extending to page 3, with the following:

Non pre-published European patent application PHNL030205EPP, which has been filed as European Patent Application 03100575.4, (now US Published Patent Application Serial no. 2006/0187186) describes an arrangement in which the reset pulses applied to each pixel between picture voltages are of an opposite polarity to the preceding picture voltage, which reduces the undesired charge accumulation in the pixel, and causes at least part of the charging of the insulators due to the picture voltage to be undone. Therefore, the display panel is subsequently able to display pictures of at least relatively medium quality.

Non pre-published European patent application PHNL021026EPP, which has been filed as European Patent Application 02079282.6, (now US Published Patent Application Serial no. 2006/0050361) describes an alternative arrangement, in which a DC-balancing circuit is provided to overcome the above-mentioned problems. The DC-balancing circuit includes a controller for determining, in respect of each pixel or relatively small sub-group of pixels, a time-average (of picture voltage) applied thereto, and for adapting the value and/or duration of the picture voltage applied to the respective pixel (or sub-group of pixels) to obtain a time-average value of around zero. This control of the amplitude of the drive voltages and/or the duration of the drive pulses, causes image retention to be reduced, without the need for reset pulses in respect of all of the pixels, and therefore with less disturbing visual effects than in the above-mentioned prior art method.

Kindly replace the paragraph beginning on page 6, line 30 and extending to page 7, with the following:

Referring to Figure 4 of the drawings, a typical random greyscale transition sequence using a pulse width modulated transition matrix is shown. A high voltage short pulse is applied between t_1 and t_2 after the $(n-1)$ th greyscale transition (V_{n-1} driving), for removing the remnant dc voltages from this transition. Two high voltage short pulses are

March 2009

Amendment
Serial No. 10/562, 542

NL 030783

applied between t_3 and t_4 , after the (n)th greyscale transition (V_n driving), for removing the remnant dc voltages from this transition. In the example shown, the polarity of the dc-balancing pulses is the same as that of the driving pulse. After the (n + 1)th greyscale transition, two high voltage short pulses with the same polarity as the driving pulse (V_{n+1} driving) are applied for removing the remnant dc voltages after this transition. The number and polarity of the dc-balancing pulses are stored in the memory, and are essentially independent of the driving pulses.

Kindly replace the paragraph beginning on page 7, line 24 and extending to page 8, with the following:

Figure 5(b) illustrates an improved driving scheme according to an exemplary embodiment of this invention, in which a low voltage pulse is added to the driving sequence immediately after the complete driving pulse. If desired, it is allowed to have a time period with zero voltage between the driving pulse and the dc-balancing pulse ($V_{dc\text{-balancing}}$) because the chosen low voltage of the dc-balancing pulse is only able to remove the remnant dc voltages on the pixel and is not able to change the optical performance, such that there is no visual effect.

Kindly replace the paragraph beginning on page 7, line 30 and extending to page 8, with the following:

The voltage sign of the dc-balancing pulse may also be opposite to that of the driving pulse as schematically shown in Figure 5(c) after the transition to n state. Again, this is possible because the dc-balancing pulse does not have a visual effect. It is apparent that the amplitude of the dc-balancing pulse should be sufficiently small to avoid the particles motion under the influence of this pulse. The voltage sign and pulse time length are determined by the previous actual greyscale transitions on the pixel using the (voltage) x (time) product principle described above. The voltage amplitude should be smaller than the switching threshold voltage for a specific ink material, usually below 1.0 V and the pulse time length is not limited, but tends to be between a few tens milliseconds to a few seconds depending on the image history.

March 2009